

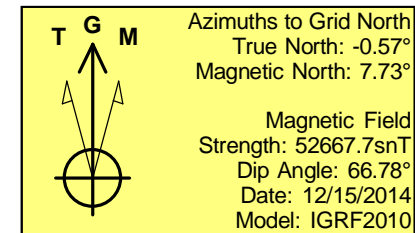
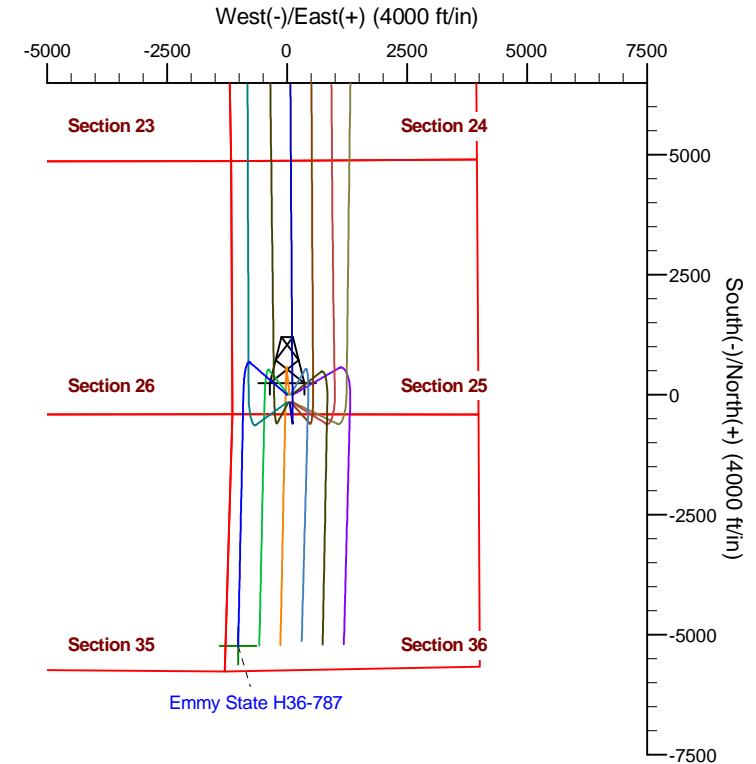
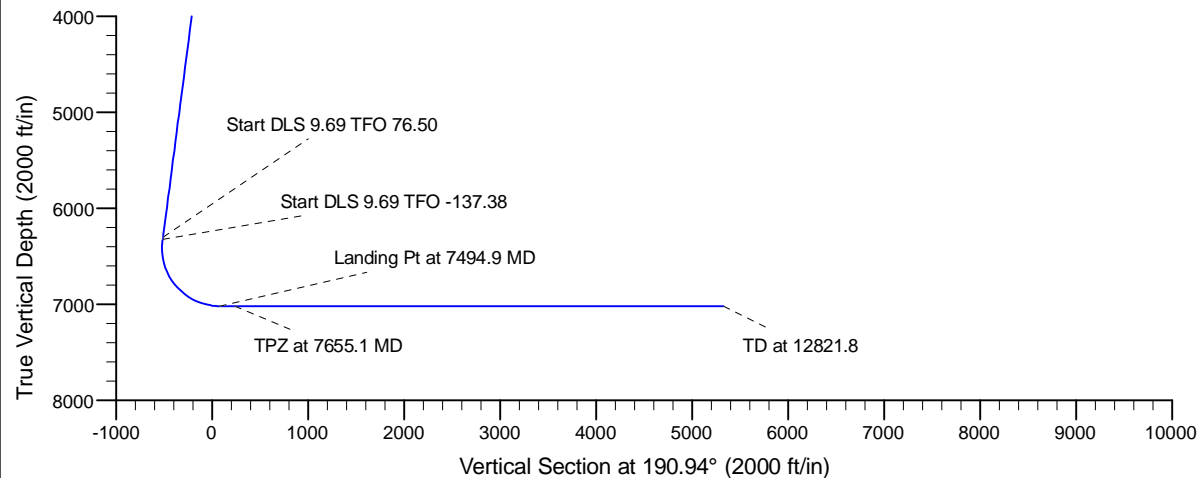
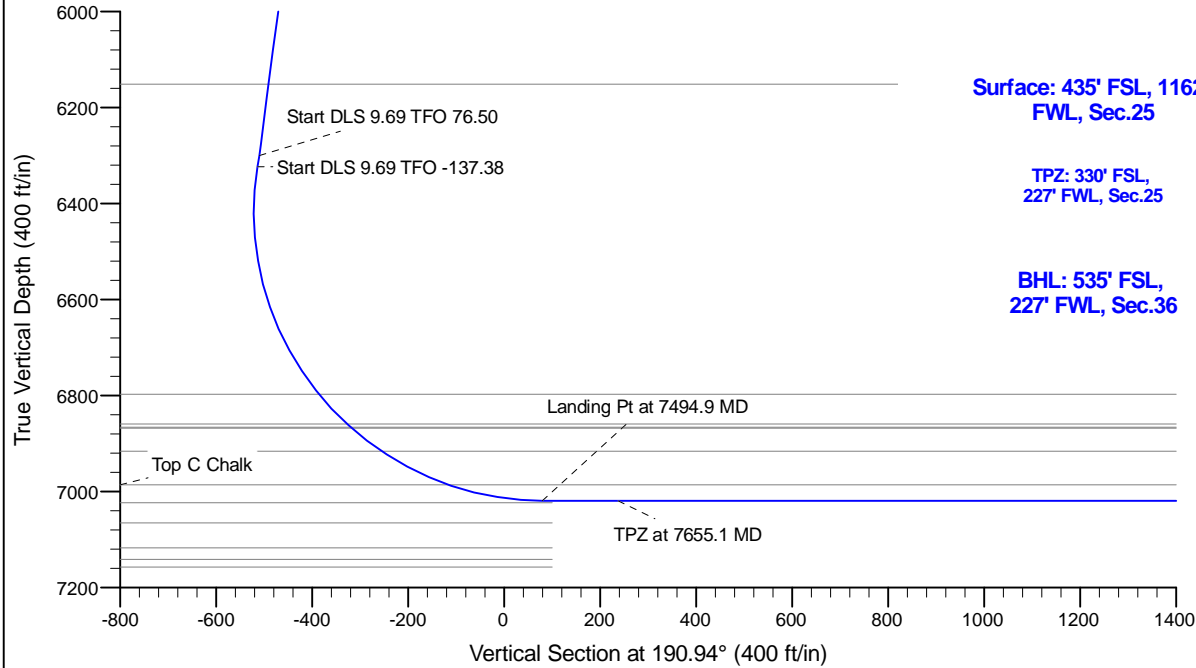
Project: Conceptual Wells
Site: DP 408
Well: Emmy State H36-787
Wellbore: Wellbore #1
Design: Prelim - Rev 2

Northern Region Drilling - DJ Basin

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2725.0	14.50	311.00	2717.3	59.9	-68.9	2.00	311.00	-45.7	
4	6425.6	14.50	311.00	6300.0	667.7	-768.1	0.00	0.00	-509.9	
5	6449.4	15.20	319.59	6323.0	672.1	-772.4	9.69	76.50	-513.3	
6	7494.9	90.00	181.19	7019.0	95.0	-910.0	9.69	-137.38	79.4	
7	12821.8	90.00	181.20	7019.0	-5230.8	-1021.0	0.00	88.63	5329.5	Emmy State H35-787 BHL



WELL DETAILS: Emmy State H36-787

0.00.0	Northings	Ground Level: 4819.0	Latitude	Longitude
	1313320.40	Easting 3246659.67	40.190090	-104.617080

Plan: Prelim - Rev 2 (Emmy State H36-787/Wellbore #1)

Created By: Colby Baxter Date: 14:59, November 02 2017

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H36-787

Wellbore #1

Plan: Prelim - Rev 2

Standard Planning Report

02 November, 2017

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H36-787
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim - Rev 2		

Project	Conceptual Wells		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	DP 408		
Site Position:		Northing:	1,318,184.69 usft
From:	Lat/Long	Easting:	3,240,225.17 usft
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "
		Latitude:	40.203616
		Longitude:	-104.639942
		Grid Convergence:	0.56 °

Well	Emmy State H36-787		
Well Position	+N/-S	-4,864.5 ft	Northing: 1,313,320.40 usft
	+E/-W	6,434.8 ft	Easting: 3,246,659.67 usft
Position Uncertainty	0.0 ft	Wellhead Elevation:	0.0 ft
		Latitude:	40.190090
		Longitude:	-104.617080
		Ground Level:	4,819.0 ft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	12/15/2014	8.30
			Dip Angle (°)
			66.78
			Field Strength (nT)
			52,667.71670142

Design	Prelim - Rev 2		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)
	(ft)	(ft)	(ft)
	0.0	0.0	0.0
			Direction (°)
			190.94

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,725.0	14.50	311.00	2,717.3	59.9	-68.9	2.00	2.00	0.00	311.00	
6,425.6	14.50	311.00	6,300.0	667.7	-768.1	0.00	0.00	0.00	0.00	
6,449.4	15.20	319.59	6,323.0	672.1	-772.4	9.69	2.95	36.06	76.50	
7,494.9	90.00	181.19	7,019.0	95.0	-910.0	9.69	7.15	-13.24	-137.38	
12,821.8	90.00	181.20	7,019.0	-5,230.8	-1,021.0	0.00	0.00	0.00	88.63	Emmy State H35-787

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H36-787
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim - Rev 2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	2.00	311.00	2,100.0	1.1	-1.3	-0.9	2.00	2.00	0.00
2,200.0	4.00	311.00	2,199.8	4.6	-5.3	-3.5	2.00	2.00	0.00
2,300.0	6.00	311.00	2,299.5	10.3	-11.8	-7.9	2.00	2.00	0.00
2,400.0	8.00	311.00	2,398.7	18.3	-21.0	-14.0	2.00	2.00	0.00
2,500.0	10.00	311.00	2,497.5	28.6	-32.8	-21.8	2.00	2.00	0.00
2,600.0	12.00	311.00	2,595.6	41.1	-47.2	-31.4	2.00	2.00	0.00
2,700.0	14.00	311.00	2,693.1	55.8	-64.2	-42.6	2.00	2.00	0.00
2,725.0	14.50	311.00	2,717.3	59.9	-68.9	-45.7	2.00	2.00	0.00
2,800.0	14.50	311.00	2,789.9	72.2	-83.0	-55.1	0.00	0.00	0.00
2,900.0	14.50	311.00	2,886.7	88.6	-101.9	-67.7	0.00	0.00	0.00
3,000.0	14.50	311.00	2,983.5	105.0	-120.8	-80.2	0.00	0.00	0.00
3,100.0	14.50	311.00	3,080.3	121.5	-139.7	-92.8	0.00	0.00	0.00
3,200.0	14.50	311.00	3,177.2	137.9	-158.6	-105.3	0.00	0.00	0.00
3,300.0	14.50	311.00	3,274.0	154.3	-177.5	-117.8	0.00	0.00	0.00
3,400.0	14.50	311.00	3,370.8	170.7	-196.4	-130.4	0.00	0.00	0.00
3,500.0	14.50	311.00	3,467.6	187.2	-215.3	-142.9	0.00	0.00	0.00
3,600.0	14.50	311.00	3,564.4	203.6	-234.2	-155.5	0.00	0.00	0.00
3,700.0	14.50	311.00	3,661.2	220.0	-253.1	-168.0	0.00	0.00	0.00
3,800.0	14.50	311.00	3,758.0	236.4	-272.0	-180.6	0.00	0.00	0.00
3,900.0	14.50	311.00	3,854.9	252.9	-290.9	-193.1	0.00	0.00	0.00
4,000.0	14.50	311.00	3,951.7	269.3	-309.8	-205.6	0.00	0.00	0.00
4,100.0	14.50	311.00	4,048.5	285.7	-328.7	-218.2	0.00	0.00	0.00
4,200.0	14.50	311.00	4,145.3	302.2	-347.6	-230.7	0.00	0.00	0.00
4,300.0	14.50	311.00	4,242.1	318.6	-366.5	-243.3	0.00	0.00	0.00
4,400.0	14.50	311.00	4,338.9	335.0	-385.4	-255.8	0.00	0.00	0.00
4,500.0	14.50	311.00	4,435.7	351.4	-404.3	-268.4	0.00	0.00	0.00
4,600.0	14.50	311.00	4,532.6	367.9	-423.2	-280.9	0.00	0.00	0.00
4,700.0	14.50	311.00	4,629.4	384.3	-442.1	-293.4	0.00	0.00	0.00
4,800.0	14.50	311.00	4,726.2	400.7	-461.0	-306.0	0.00	0.00	0.00
4,900.0	14.50	311.00	4,823.0	417.1	-479.9	-318.5	0.00	0.00	0.00
5,000.0	14.50	311.00	4,919.8	433.6	-498.8	-331.1	0.00	0.00	0.00
5,100.0	14.50	311.00	5,016.6	450.0	-517.7	-343.6	0.00	0.00	0.00
5,200.0	14.50	311.00	5,113.5	466.4	-536.6	-356.2	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H36-787
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim - Rev 2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.0	14.50	311.00	5,210.3	482.8	-555.5	-368.7	0.00	0.00	0.00
5,400.0	14.50	311.00	5,307.1	499.3	-574.3	-381.2	0.00	0.00	0.00
5,500.0	14.50	311.00	5,403.9	515.7	-593.2	-393.8	0.00	0.00	0.00
5,600.0	14.50	311.00	5,500.7	532.1	-612.1	-406.3	0.00	0.00	0.00
5,700.0	14.50	311.00	5,597.5	548.6	-631.0	-418.9	0.00	0.00	0.00
5,800.0	14.50	311.00	5,694.3	565.0	-649.9	-431.4	0.00	0.00	0.00
5,900.0	14.50	311.00	5,791.2	581.4	-668.8	-444.0	0.00	0.00	0.00
6,000.0	14.50	311.00	5,888.0	597.8	-687.7	-456.5	0.00	0.00	0.00
6,100.0	14.50	311.00	5,984.8	614.3	-706.6	-469.1	0.00	0.00	0.00
6,200.0	14.50	311.00	6,081.6	630.7	-725.5	-481.6	0.00	0.00	0.00
6,300.0	14.50	311.00	6,178.4	647.1	-744.4	-494.1	0.00	0.00	0.00
6,400.0	14.50	311.00	6,275.2	663.5	-763.3	-506.7	0.00	0.00	0.00
6,425.6	14.50	311.00	6,300.0	667.7	-768.1	-509.9	0.00	0.00	0.00
6,449.4	15.20	319.59	6,323.0	672.1	-772.4	-513.3	9.69	2.95	36.06
6,500.0	12.05	303.49	6,372.2	680.0	-781.1	-519.5	9.69	-6.23	-31.81
6,600.0	10.74	253.27	6,470.5	683.1	-798.8	-519.2	9.69	-1.31	-50.22
6,700.0	16.47	218.80	6,567.8	669.4	-816.6	-502.3	9.69	5.73	-34.47
6,800.0	24.76	204.22	6,661.3	639.2	-834.2	-469.3	9.69	8.29	-14.58
6,900.0	33.77	196.85	6,748.5	593.4	-850.8	-421.2	9.69	9.01	-7.38
7,000.0	43.05	192.33	6,826.8	533.3	-866.2	-359.3	9.69	9.28	-4.52
7,100.0	52.45	189.16	6,894.0	460.6	-879.8	-285.3	9.69	9.40	-3.17
7,200.0	61.92	186.71	6,948.1	377.5	-891.3	-201.5	9.69	9.47	-2.45
7,300.0	71.43	184.67	6,987.7	286.2	-900.4	-110.2	9.69	9.51	-2.05
7,400.0	80.95	182.84	7,011.5	189.4	-906.7	-14.0	9.69	9.53	-1.83
7,494.9	90.00	181.19	7,019.0	95.0	-910.0	79.4	9.69	9.53	-1.73
7,500.0	90.00	181.19	7,019.0	89.9	-910.1	84.4	0.00	0.00	0.00
7,600.0	90.00	181.19	7,019.0	-10.1	-912.2	183.0	0.00	0.00	0.00
7,700.0	90.00	181.19	7,019.0	-110.1	-914.3	281.5	0.00	0.00	0.00
7,800.0	90.00	181.19	7,019.0	-210.1	-916.3	380.1	0.00	0.00	0.00
7,900.0	90.00	181.19	7,019.0	-310.0	-918.4	478.6	0.00	0.00	0.00
8,000.0	90.00	181.19	7,019.0	-410.0	-920.5	577.2	0.00	0.00	0.00
8,100.0	90.00	181.19	7,019.0	-510.0	-922.6	675.8	0.00	0.00	0.00
8,200.0	90.00	181.19	7,019.0	-610.0	-924.7	774.3	0.00	0.00	0.00
8,300.0	90.00	181.19	7,019.0	-710.0	-926.7	872.9	0.00	0.00	0.00
8,400.0	90.00	181.19	7,019.0	-809.9	-928.8	971.4	0.00	0.00	0.00
8,500.0	90.00	181.19	7,019.0	-909.9	-930.9	1,070.0	0.00	0.00	0.00
8,600.0	90.00	181.19	7,019.0	-1,009.9	-933.0	1,168.5	0.00	0.00	0.00
8,700.0	90.00	181.19	7,019.0	-1,109.9	-935.0	1,267.1	0.00	0.00	0.00
8,800.0	90.00	181.19	7,019.0	-1,209.8	-937.1	1,365.7	0.00	0.00	0.00
8,900.0	90.00	181.19	7,019.0	-1,309.8	-939.2	1,464.2	0.00	0.00	0.00
9,000.0	90.00	181.19	7,019.0	-1,409.8	-941.3	1,562.8	0.00	0.00	0.00
9,100.0	90.00	181.19	7,019.0	-1,509.8	-943.4	1,661.3	0.00	0.00	0.00
9,200.0	90.00	181.19	7,019.0	-1,609.8	-945.5	1,759.9	0.00	0.00	0.00
9,300.0	90.00	181.19	7,019.0	-1,709.7	-947.5	1,858.4	0.00	0.00	0.00
9,400.0	90.00	181.19	7,019.0	-1,809.7	-949.6	1,957.0	0.00	0.00	0.00
9,500.0	90.00	181.19	7,019.0	-1,909.7	-951.7	2,055.6	0.00	0.00	0.00
9,600.0	90.00	181.19	7,019.0	-2,009.7	-953.8	2,154.1	0.00	0.00	0.00
9,700.0	90.00	181.19	7,019.0	-2,109.6	-955.9	2,252.7	0.00	0.00	0.00
9,800.0	90.00	181.19	7,019.0	-2,209.6	-957.9	2,351.2	0.00	0.00	0.00
9,900.0	90.00	181.19	7,019.0	-2,309.6	-960.0	2,449.8	0.00	0.00	0.00
10,000.0	90.00	181.19	7,019.0	-2,409.6	-962.1	2,548.3	0.00	0.00	0.00
10,100.0	90.00	181.19	7,019.0	-2,509.6	-964.2	2,646.9	0.00	0.00	0.00
10,200.0	90.00	181.19	7,019.0	-2,609.5	-966.3	2,745.5	0.00	0.00	0.00
10,300.0	90.00	181.19	7,019.0	-2,709.5	-968.4	2,844.0	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

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Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim - Rev 2		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,400.0	90.00	181.19	7,019.0	-2,809.5	-970.5	2,942.6	0.00	0.00	0.00	
10,500.0	90.00	181.19	7,019.0	-2,909.5	-972.5	3,041.1	0.00	0.00	0.00	
10,600.0	90.00	181.20	7,019.0	-3,009.5	-974.6	3,139.7	0.00	0.00	0.00	
10,700.0	90.00	181.20	7,019.0	-3,109.4	-976.7	3,238.3	0.00	0.00	0.00	
10,800.0	90.00	181.20	7,019.0	-3,209.4	-978.8	3,336.8	0.00	0.00	0.00	
10,900.0	90.00	181.20	7,019.0	-3,309.4	-980.9	3,435.4	0.00	0.00	0.00	
11,000.0	90.00	181.20	7,019.0	-3,409.4	-983.0	3,533.9	0.00	0.00	0.00	
11,100.0	90.00	181.20	7,019.0	-3,509.3	-985.1	3,632.5	0.00	0.00	0.00	
11,200.0	90.00	181.20	7,019.0	-3,609.3	-987.1	3,731.0	0.00	0.00	0.00	
11,300.0	90.00	181.20	7,019.0	-3,709.3	-989.2	3,829.6	0.00	0.00	0.00	
11,400.0	90.00	181.20	7,019.0	-3,809.3	-991.3	3,928.2	0.00	0.00	0.00	
11,500.0	90.00	181.20	7,019.0	-3,909.3	-993.4	4,026.7	0.00	0.00	0.00	
11,600.0	90.00	181.20	7,019.0	-4,009.2	-995.5	4,125.3	0.00	0.00	0.00	
11,700.0	90.00	181.20	7,019.0	-4,109.2	-997.6	4,223.8	0.00	0.00	0.00	
11,800.0	90.00	181.20	7,019.0	-4,209.2	-999.7	4,322.4	0.00	0.00	0.00	
11,900.0	90.00	181.20	7,019.0	-4,309.2	-1,001.8	4,421.0	0.00	0.00	0.00	
12,000.0	90.00	181.20	7,019.0	-4,409.1	-1,003.9	4,519.5	0.00	0.00	0.00	
12,100.0	90.00	181.20	7,019.0	-4,509.1	-1,005.9	4,618.1	0.00	0.00	0.00	
12,200.0	90.00	181.20	7,019.0	-4,609.1	-1,008.0	4,716.6	0.00	0.00	0.00	
12,300.0	90.00	181.20	7,019.0	-4,709.1	-1,010.1	4,815.2	0.00	0.00	0.00	
12,400.0	90.00	181.20	7,019.0	-4,809.1	-1,012.2	4,913.8	0.00	0.00	0.00	
12,500.0	90.00	181.20	7,019.0	-4,909.0	-1,014.3	5,012.3	0.00	0.00	0.00	
12,600.0	90.00	181.20	7,019.0	-5,009.0	-1,016.4	5,110.9	0.00	0.00	0.00	
12,700.0	90.00	181.20	7,019.0	-5,109.0	-1,018.5	5,209.4	0.00	0.00	0.00	
12,800.0	90.00	181.20	7,019.0	-5,209.0	-1,020.6	5,308.0	0.00	0.00	0.00	
12,821.8	90.00	181.20	7,019.0	-5,230.8	-1,021.0	5,329.5	0.00	0.00	0.00	

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Emmy State H35-787 Bl	0.00	0.00	7,019.0	-5,230.8	-1,021.0	1,308,089.83	3,245,638.68	40.175760	-104.620920
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H36-787
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim - Rev 2		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
600.0	600.0	Pierre				
752.0	752.0	Upper Pierre Aquifer Top				
1,640.0	1,640.0	Upper Pierre Aquifer Base				
3,953.9	3,907.0	Parkman				
4,564.3	4,498.0	Sussex				
5,268.7	5,180.0	Shannon				
6,271.7	6,151.0	Teepee Buttes				
6,960.4	6,797.0	Sharon Springs				
7,045.7	6,859.0	Top A Chalk				
7,056.1	6,866.0	Top A Marl				
7,059.1	6,868.0	Top B Chalk				
7,137.7	6,916.0	Top B Marl				
7,294.8	6,986.0	Top C Chalk				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,000.0	2,000.0	0.0	0.0	KOP - Start Build 2.00	
6,425.6	6,300.0	667.7	-768.1	Start DLS 9.69 TFO 76.50	
6,449.4	6,323.0	672.1	-772.4	Start DLS 9.69 TFO -137.38	
7,494.9	7,019.0	95.0	-910.0	Landing Pt at 7494.9 MD	
7,655.1	7,019.0	-65.2	-913.3	TPZ at 7655.1 MD	
12,821.8	7,019.0	-5,230.8	-1,021.0	TD at 12821.8	

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H36-787

Wellbore #1

Prelim - Rev 2

Anticollision Summary Report

02 November, 2017

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Reference	Prelim - Rev 2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 ft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	11/2/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,821.8	Prelim - Rev 2 (Wellbore #1)	MWD+IFR1+MS_WY	Fixed:v2:Rockies, crustal dec + 3-axis correction

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 19						
Butterball H24-69HN - Original Drilling - Original Drilling -	6,570.9	11,992.0	9,914.2	9,767.7	67.684	CC, ES
Butterball H24-69HN - Original Drilling - Original Drilling -	6,650.0	11,992.0	9,919.6	9,772.9	67.642	SF
DP 408						
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	2,000.0	1,986.0	2,298.9	2,290.2	265.243	CC, ES
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	11,000.0	5,836.8	5,530.0	5,486.9	128.283	SF
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	2,000.0	1,986.0	2,276.6	2,267.9	262.670	CC, ES
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	10,600.0	6,117.0	5,042.2	5,001.4	123.450	SF
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	2,000.0	1,986.0	2,254.3	2,245.6	260.097	CC, ES
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	9,900.0	6,450.0	4,217.3	4,179.5	111.285	SF
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	2,000.0	1,985.0	2,232.0	2,223.3	257.591	CC, ES
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	6,750.0	7,939.8	3,383.8	3,350.4	101.457	SF
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	2,000.0	1,986.0	2,209.7	2,201.0	254.952	CC, ES
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	6,700.0	7,909.3	2,990.6	2,957.0	88.905	SF
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	2,000.0	1,986.0	2,187.4	2,178.7	252.379	CC, ES
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	6,700.0	7,939.3	2,528.9	2,494.4	73.392	SF
Emmy State H25-751 - Wellbore #1 - Design #1	2,000.0	2,003.0	191.1	182.4	21.957	CC, ES
Emmy State H25-751 - Wellbore #1 - Design #1	2,200.0	2,196.8	198.0	188.4	20.668	SF
Emmy State H25-757 - Wellbore #1 - Design #1	2,000.0	2,003.0	178.6	169.9	20.522	CC, ES
Emmy State H25-757 - Wellbore #1 - Design #1	2,300.0	2,303.5	193.7	183.6	19.292	SF
Emmy State H25-764 - Wellbore #1 - Design #1	2,000.0	2,003.0	168.2	159.5	19.322	CC, ES
Emmy State H25-764 - Wellbore #1 - Design #1	2,300.0	2,303.5	182.7	172.6	18.193	SF
Emmy State H25-771 - Wellbore #1 - Design #1	2,000.0	2,003.0	160.2	151.5	18.404	CC, ES
Emmy State H25-771 - Wellbore #1 - Design #1	2,300.0	2,303.5	173.8	163.8	17.312	SF
Emmy State H25-777 - Wellbore #1 - Design #1	2,000.0	2,002.0	151.5	142.8	17.404	CC, ES
Emmy State H25-777 - Wellbore #1 - Design #1	2,200.0	2,197.8	157.0	147.4	16.381	SF
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	7,244.5	7,772.3	93.6	59.0	2.708	CC, ES, SF
Emmy State H36-753 - Wellbore #1 - Design #1	2,000.0	2,003.0	114.5	105.8	13.159	CC, ES
Emmy State H36-753 - Wellbore #1 - Design #1	2,200.0	2,203.2	119.9	110.3	12.499	SF
Emmy State H36-760 - Wellbore #1 - Design #1	2,000.0	2,002.0	92.2	83.5	10.594	CC, ES
Emmy State H36-760 - Wellbore #1 - Design #1	12,700.0	23,337.0	1,759.2	1,552.9	8.530	SF
Emmy State H36-766 - Wellbore #1 - Design #1	2,000.0	2,002.0	69.8	61.1	8.026	CC, ES
Emmy State H36-766 - Wellbore #1 - Design #1	2,100.0	2,102.0	71.2	62.0	7.780	SF
Emmy State H36-773 - Wellbore #1 - Design #1	2,000.0	2,002.0	47.5	38.8	5.457	CC, ES
Emmy State H36-773 - Wellbore #1 - Design #1	2,100.0	2,102.0	48.8	39.7	5.337	SF
Emmy State H36-780 - Wellbore #1 - Design #1	2,000.0	2,001.0	25.1	16.4	2.890	CC, ES, SF
Hurley H26-712 - Wellbore #1 - Design #1	6,600.9	6,583.9	1,523.8	1,491.6	47.379	CC, ES

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
DP 408						
Hurley H26-712 - Wellbore #1 - Design #1	6,650.0	6,600.0	1,526.2	1,493.9	47.235	SF
Hurley H26-717 - Wellbore #1 - Design #1	6,611.7	6,529.5	1,657.7	1,626.8	53.633	CC, ES
Hurley H26-717 - Wellbore #1 - Design #1	6,650.0	6,550.0	1,659.1	1,628.1	53.473	SF
Hurley H26-724 - Wellbore #1 - Design #1	6,635.6	6,500.0	1,938.1	1,907.7	63.719	CC, ES
Hurley H26-724 - Wellbore #1 - Design #1	6,750.0	6,524.7	1,948.9	1,918.2	63.586	SF
Hurley H26-730 - Wellbore #1 - Design #1	6,650.0	6,467.2	2,384.3	2,353.8	78.248	CC, ES
Hurley H26-730 - Wellbore #1 - Design #1	6,750.0	6,500.0	2,393.0	2,362.3	77.916	SF
Hurley H26-736 - Wellbore #1 - Design #1	6,627.7	6,400.0	2,506.4	2,475.2	80.257	CC, ES
Hurley H26-736 - Wellbore #1 - Design #1	6,750.0	6,432.5	2,516.2	2,484.7	79.847	SF
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	6,558.5	6,209.2	2,722.1	2,690.3	85.482	CC, ES
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	6,850.0	6,477.0	2,759.1	2,725.9	82.932	SF
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	6,816.7	6,970.0	3,397.4	3,364.5	103.307	CC, ES
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	6,900.0	6,978.8	3,401.0	3,368.0	103.223	SF
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	6,820.2	6,850.0	3,697.8	3,665.9	115.785	CC, ES
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	6,900.0	6,850.0	3,700.9	3,668.9	115.703	SF
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	6,826.6	6,700.0	4,049.5	4,018.4	129.908	CC, ES
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	6,900.0	6,724.3	4,051.6	4,020.3	129.677	SF
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	6,827.7	6,569.5	4,394.1	4,363.2	142.171	CC, ES
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	9,600.0	6,550.0	5,703.9	5,663.1	139.694	SF
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	6,806.6	6,417.3	4,814.1	4,783.1	155.282	CC, ES
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	10,100.0	6,500.0	6,370.9	6,326.7	144.359	SF
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	6,770.9	6,271.5	5,070.5	5,039.4	162.611	CC, ES
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	10,400.0	6,450.0	6,776.9	6,730.3	145.329	SF
Hurley H35-720 - Wellbore #1 - Design #1	12,821.8	15,506.7	882.2	748.8	6.614	CC, ES, SF
Hurley H35-727 - Wellbore #1 - Design #1	12,821.8	15,287.5	1,322.5	1,188.7	9.886	CC, ES, SF
Hurley H35-733 - Wellbore #1 - Design #1	12,821.8	15,304.0	1,759.8	1,626.1	13.167	CC, ES, SF
Hurley H35-740 - Wellbore #1 - Design #1	12,821.8	15,383.4	2,206.4	2,072.5	16.472	CC, ES, SF
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	12,821.8	15,320.0	2,642.1	2,508.3	19.747	CC, ES, SF
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	12,821.8	15,254.9	2,961.2	2,828.0	22.223	CC, ES, SF
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	12,821.8	15,062.5	3,400.8	3,268.2	25.636	CC, ES, SF
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	12,821.8	15,103.2	3,839.3	3,707.2	29.068	CC, ES, SF
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	12,821.8	15,135.8	4,279.3	4,147.6	32.479	CC, ES, SF
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	12,821.8	15,057.2	4,712.4	4,580.3	35.665	CC, ES, SF
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	12,821.8	15,245.7	5,159.4	5,026.6	38.826	CC, ES, SF
Hurley State H35-713 - Wellbore #1 - Design #1	12,821.8	15,242.2	443.5	309.8	3.317	CC, ES, SF
H Section 13						
Karakakes H13-25 - Original Drilling - Original Drilling - A						Out of range
Karakakes H13-33 - Original Drilling - Original Drilling - A						Out of range
Karakakes H14-63HN - Original Drilling - Original Drilling						Out of range
Sarchet H13-75HN - Original Drilling - Original Drilling	6,527.7	6,188.0	9,573.2	9,537.2	265.939	CC, ES
Sarchet H13-75HN - Original Drilling - Original Drilling	6,800.0	6,220.0	9,636.7	9,600.2	263.489	SF
UPRC 13-13J - Original Drilling - Original Drilling - As Dri						Out of range
UPRC 13-14J - Original Drilling - Original Drilling - As Dri						Out of range
UPRC 13-15J - Original Drilling - Original Drilling - As Dri						Out of range
UPRC 13-16J - Wellbore #1 - Wellbore #1- As Drilled						Out of range
UPRR 39 Pan Am B1 (PA) - Original Drilling - Original Dr						Out of range

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 14						
Bohlender H14-09 - Original Drilling - Original Drilling - A						Out of range
Bohlender H14-15 - Original Drilling - Original Drilling - A						Out of range
Bohlender H14-16 - Original Drilling - Original Drilling - A						Out of range
Wilcox H14-03J - Original Drilling - Original Drilling - As D						Out of range
Wilcox H14-10 - Original Drilling - Original Drilling - As Dr						Out of range
Wilcox H14-11 - Original Drilling - Original Drilling - As Dr						Out of range
Wilcox H14-13 - Original Drilling - Original Drilling - As Dr						Out of range
H Section 19						
Butterball 13-19 - Original Drilling - Original Drilling - As D	5,050.5	4,800.0	8,226.7	8,197.3	280.476	CC
Butterball 13-19 - Original Drilling - Original Drilling - As D	5,100.0	4,822.5	8,226.7	8,197.2	278.284	ES
Butterball 13-19 - Original Drilling - Original Drilling - As D	7,350.0	7,350.0	8,706.3	8,663.3	202.446	SF
H Section 21						
Moser 24-21 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
H Section 22						
HSR Demeules 09-22 - Original Drilling - Original Drilling	6,671.7	6,432.1	8,704.5	8,666.0	226.440	CC, ES
HSR Demeules 09-22 - Original Drilling - Original Drilling	7,150.0	7,150.0	8,834.7	8,793.3	213.079	SF
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	6,691.0	6,370.0	8,533.8	8,495.6	223.401	CC, ES
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	9,100.0	9,100.0	9,930.3	9,875.4	181.078	SF
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	6,710.0	6,504.9	7,883.7	7,844.9	203.109	CC, ES
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	10,100.0	6,839.2	9,993.1	9,941.5	193.373	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 23						
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	6,605.5	6,527.1	7,811.0	7,771.7	198.697	CC, ES
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	7,100.0	6,981.2	7,997.0	7,955.5	192.576	SF
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	6,581.6	6,442.4	8,757.8	8,612.1	60.096	CC
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	6,600.0	6,460.5	8,758.1	8,612.0	59.934	ES
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	7,100.0	6,884.0	8,969.3	8,814.1	57.784	SF
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	6,597.2	6,447.9	9,104.9	9,024.0	112.548	CC
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	6,600.0	6,450.6	9,104.9	9,023.9	112.410	ES
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	7,350.0	6,979.1	9,509.4	9,409.3	94.959	SF
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	6,583.4	6,454.2	7,446.1	7,300.2	51.020	CC
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	6,600.0	6,470.5	7,446.3	7,300.0	50.897	ES
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	7,050.0	6,861.9	7,619.2	7,464.5	49.244	SF
HSR Alberstein 16-23 - Original Drilling - Original Drilling	6,572.7	6,280.1	5,171.3	5,132.8	134.285	CC, ES
HSR Alberstein 16-23 - Original Drilling - Original Drilling	6,950.0	6,608.5	5,286.5	5,246.3	131.377	SF
HSR Ashley 15-23A - Original Drilling - Original Drilling -	6,605.7	6,338.8	5,687.1	5,648.6	147.807	CC, ES
HSR Ashley 15-23A - Original Drilling - Original Drilling -	6,950.0	6,600.0	5,775.9	5,735.9	144.690	SF
HSR Benirschke 10-23 - Original Drilling - Original Drillin	6,582.9	6,200.0	6,469.5	6,431.4	169.840	CC, ES
HSR Benirschke 10-23 - Original Drilling - Original Drillin	6,900.0	6,400.0	6,548.8	6,509.5	166.640	SF
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	4,741.2	2,500.0	9,348.4	9,328.7	474.799	CC
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	4,870.5	2,543.2	9,348.4	9,328.2	462.924	ES
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	7,150.0	7,133.2	9,748.0	9,706.1	232.269	SF
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	100.0	63.9	9,583.4	9,583.3	10,000.000	CC
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	1,000.0	900.0	9,587.2	9,582.1	1,889.157	ES
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	6,300.0	1,738.7	9,979.3	9,947.9	317.566	SF
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	6,617.1	6,640.5	9,030.9	8,905.0	71.725	CC, ES
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	7,100.0	7,045.1	9,185.3	9,053.8	69.864	SF
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	6,611.3	6,381.5	8,830.7	8,786.4	199.074	CC, ES
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	7,100.0	6,803.0	9,000.0	8,953.7	194.312	SF
HSR Grasshopper 09-23 - Original Drilling - Original Drill	6,623.5	6,824.1	6,038.1	5,997.7	149.482	CC, ES
HSR Grasshopper 09-23 - Original Drilling - Original Drill	6,900.0	7,074.8	6,100.1	6,058.4	146.352	SF
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	6,614.4	6,583.7	8,702.2	8,662.8	220.720	CC, ES
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	7,900.0	7,900.0	9,599.0	9,553.5	210.761	SF
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	6,586.3	6,400.0	7,013.0	6,972.1	171.609	CC, ES
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	6,950.0	6,851.0	7,114.3	7,071.5	166.383	SF
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	6,578.3	6,645.4	8,142.0	8,086.1	145.737	CC, ES
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	6,850.0	6,898.0	8,203.2	8,146.4	144.448	SF
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	6,634.3	6,442.5	7,265.3	7,226.7	187.880	CC, ES
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	7,100.0	6,833.3	7,413.2	7,372.5	182.415	SF
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	6,667.1	6,667.1	8,036.0	7,996.7	204.407	CC, ES
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	7,100.0	6,800.0	8,155.8	8,115.5	202.196	SF
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	6,671.3	6,432.4	7,182.7	7,144.2	186.290	CC, ES
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	7,200.0	6,788.5	7,341.8	7,301.4	181.631	SF
UPRC H23-14J - Original Drilling - Original Drilling - As D	6,634.3	6,370.6	5,950.7	5,912.3	154.897	CC, ES
UPRC H23-14J - Original Drilling - Original Drilling - As D	7,000.0	6,642.9	6,040.4	6,000.6	151.468	SF
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	6,598.7	6,139.8	6,582.9	6,545.3	174.702	CC
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	6,600.0	6,140.8	6,582.9	6,545.3	174.672	ES
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	7,050.0	6,609.2	6,723.9	6,683.9	168.289	SF
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	6,663.8	6,489.8	6,959.1	6,813.1	47.677	CC, ES
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	7,150.0	6,879.8	7,102.4	6,948.0	46.017	SF
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	6,591.9	6,500.0	8,040.8	8,001.5	204.474	CC, ES
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	7,000.0	6,714.3	8,177.7	8,137.1	201.057	SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 24						
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	6,495.0	6,254.9	7,435.7	7,396.7	190.846	CC
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	6,500.0	6,259.9	7,435.7	7,396.7	190.696	ES
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	6,950.0	6,716.7	7,576.6	7,535.5	184.050	SF
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	6,508.1	6,221.0	6,859.7	6,820.8	176.455	CC, ES
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	6,850.0	6,850.0	6,946.2	6,904.6	166.966	SF
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	6,547.0	6,442.9	6,299.8	6,260.3	159.154	CC
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	6,550.0	6,444.4	6,299.9	6,260.3	159.105	ES
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	6,850.0	6,616.2	6,377.0	6,336.3	156.773	SF
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	6,569.6	6,500.0	6,142.0	6,102.3	155.067	CC, ES
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	6,700.0	6,500.0	6,157.6	6,117.8	154.423	SF
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	6,637.4	7,340.0	6,009.3	5,967.3	143.119	CC, ES
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	6,800.0	7,340.0	6,033.6	5,991.2	142.440	SF
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	6,657.8	7,380.0	4,560.1	4,517.4	106.697	CC, ES
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	6,800.0	7,380.0	4,579.2	4,536.1	106.199	SF
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	6,506.7	6,327.9	5,637.1	5,597.9	143.715	CC, ES
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	6,850.0	6,754.0	5,719.3	5,678.0	138.728	SF
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	6,482.6	6,281.8	6,209.2	6,170.2	159.319	CC, ES
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	7,300.0	7,300.0	6,598.6	6,555.7	153.729	SF
Gurtler H24-14 - Original Drilling - Original Drilling - As D	6,527.8	6,352.4	5,018.3	4,979.0	127.620	CC, ES
Gurtler H24-14 - Original Drilling - Original Drilling - As D	6,800.0	6,604.7	5,077.0	5,036.4	124.861	SF
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	6,514.8	6,144.6	7,009.2	6,970.6	181.715	CC, ES
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	6,900.0	6,446.2	7,127.4	7,087.2	177.288	SF
Gurtler H24-23 - Original Drilling - Original Drilling - As D	6,505.6	6,348.4	6,544.0	6,504.7	166.576	CC, ES
Gurtler H24-23 - Original Drilling - Original Drilling - As D	6,850.0	6,850.0	6,628.3	6,586.8	159.473	SF
Gurtler H24-24 - Original Drilling - Original Drilling - As D	6,517.6	6,300.3	6,008.0	5,968.8	153.095	CC, ES
Gurtler H24-24 - Original Drilling - Original Drilling - As D	6,900.0	6,632.8	6,120.8	6,079.9	149.315	SF
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	6,613.9	11,118.0	5,490.3	5,353.9	40.261	CC, ES
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	6,700.0	11,118.0	5,497.2	5,360.6	40.233	SF
Gurtler H25-27 - Original Drilling - Original Drilling - As D	6,493.7	6,370.8	5,520.1	5,480.5	139.265	CC
Gurtler H25-27 - Original Drilling - Original Drilling - As D	6,500.0	6,376.7	5,520.1	5,480.5	139.136	ES
Gurtler H25-27 - Original Drilling - Original Drilling - As D	6,850.0	6,704.8	5,603.8	5,562.5	135.614	SF
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	6,551.7	6,462.0	5,355.3	5,315.6	135.083	CC, ES
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	7,300.0	6,957.8	5,768.0	5,717.9	115.306	SF
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	6,549.9	6,207.6	8,624.1	8,585.5	223.507	CC
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	6,550.0	6,207.8	8,624.1	8,585.5	223.502	ES
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	7,200.0	6,721.7	8,951.8	8,910.7	217.936	SF
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	6,540.6	6,180.4	7,868.3	7,829.8	204.164	CC, ES
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	6,800.0	6,800.0	7,924.0	7,882.8	192.679	SF
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	6,559.2	6,574.0	8,869.2	8,825.8	204.393	CC, ES
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	7,200.0	7,097.5	9,179.5	9,130.2	186.250	SF
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	6,537.9	6,464.2	9,212.5	9,172.8	231.924	CC, ES
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	6,900.0	6,660.7	9,317.7	9,276.8	227.597	SF
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	6,517.9	6,051.2	7,537.3	7,499.2	197.368	CC, ES
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	7,150.0	6,821.0	7,840.4	7,798.8	188.814	SF
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	6,517.4	6,261.3	9,765.6	9,726.6	250.457	CC
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	6,550.0	6,550.0	9,766.3	9,726.2	243.734	ES
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	7,000.0	7,000.0	9,933.9	9,891.8	235.641	SF
Nopens D19-31 - Original Drilling - Original Drilling - As D	6,481.1	5,896.5	9,304.9	9,267.2	247.161	CC, ES
Nopens D19-31 - Original Drilling - Original Drilling - As D	7,050.0	6,591.1	9,527.9	9,487.2	233.911	SF
Nopens H24-08 - Original Drilling - Original Drilling - As D	6,485.5	5,962.2	8,545.8	8,507.9	225.413	CC, ES
Nopens H24-08 - Original Drilling - Original Drilling - As D	7,000.0	6,488.8	8,732.3	8,691.9	216.135	SF
Sarchet H24-22 - Original Drilling - Original Drilling - As D	6,503.8	6,119.2	7,865.2	7,826.7	204.304	CC, ES
Sarchet H24-22 - Original Drilling - Original Drilling - As D	6,850.0	6,411.8	7,958.5	7,918.5	198.589	SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 24						
Weld County Lumber 01 - Original Drilling - Original Drilli	6,523.8	6,300.0	8,507.8	8,468.7	217.261	CC, ES
Weld County Lumber 01 - Original Drilling - Original Drilli	7,050.0	6,796.8	8,714.5	8,673.0	210.058	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 25						
Dechant 21-25 - Original Drilling - Original Drilling - As D	575.7	556.7	3,008.5	3,005.5	1,030.361	CC
Dechant 21-25 - Original Drilling - Original Drilling - As D	1,400.0	1,370.2	3,010.5	3,002.9	395.653	ES
Dechant 21-25 - Original Drilling - Original Drilling - As D	6,750.0	6,776.0	3,648.9	3,605.7	84.605	SF
Dechant D30-33D - Original Drilling - Original Drilling - As	100.0	49.9	3,083.6	3,083.5	10,000.000	CC, ES
Dechant D30-33D - Original Drilling - Original Drilling - As	10,300.0	10,300.0	6,048.9	5,989.7	102.134	SF
Dechant D31-30D - Original Drilling - Original Drilling - As	100.0	55.2	3,075.4	3,075.2	10,000.000	CC
Dechant D31-30D - Original Drilling - Original Drilling - As	300.0	241.7	3,076.3	3,075.1	2,500.205	ES
Dechant D31-30D - Original Drilling - Original Drilling - As	10,000.0	7,109.7	5,270.9	5,216.0	96.042	SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	6,729.8	6,852.7	532.5	494.1	13.851	CC, ES
Dechant H25-64-1HN - Original Drilling - Original Drilling	6,750.0	6,862.0	533.2	494.5	13.789	SF
Dechant H25-65HN - Original Drilling - Original Drilling	6,680.4	6,944.8	1,406.5	1,368.0	36.556	CC, ES
Dechant H25-65HN - Original Drilling - Original Drilling	6,800.0	6,987.0	1,423.2	1,383.8	36.104	SF
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	6,521.5	6,338.6	3,756.3	3,717.0	95.650	CC, ES
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	6,800.0	6,622.3	3,817.2	3,776.5	93.728	SF
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	6,500.7	6,357.7	2,592.6	2,553.2	65.910	CC, ES
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	6,750.0	6,587.1	2,637.9	2,597.3	65.005	SF
HSR Dechant 04-25 - Original Drilling - Original Drilling -	1,543.2	1,535.3	2,697.8	2,689.3	316.471	CC, ES
HSR Dechant 04-25 - Original Drilling - Original Drilling -	6,800.0	7,097.2	3,632.7	3,588.5	82.024	SF
HSR Dechant 05-25 - Original Drilling - Original Drilling -	6,546.8	6,414.6	2,097.6	2,058.1	53.159	CC
HSR Dechant 05-25 - Original Drilling - Original Drilling -	6,550.0	6,417.6	2,097.6	2,058.1	53.135	ES
HSR Dechant 05-25 - Original Drilling - Original Drilling -	6,700.0	6,559.6	2,117.3	2,077.1	52.591	SF
KY Blue D30-32 - Original Drilling - Original Drilling - As D	2,123.3	2,131.8	4,292.0	4,280.1	361.116	CC
KY Blue D30-32 - Original Drilling - Original Drilling - As D	2,200.0	2,203.3	4,292.4	4,280.1	348.968	ES
KY Blue D30-32 - Original Drilling - Original Drilling - As D	6,950.0	6,703.2	4,931.1	4,890.7	122.147	SF
KY Blue H25-04J - Original Drilling - Original Drilling - As	2,000.0	1,951.0	3,063.6	3,055.9	395.044	CC, ES
KY Blue H25-04J - Original Drilling - Original Drilling - As	7,050.0	6,812.9	3,872.8	3,844.3	135.688	SF
KY Blue H25-09 - Original Drilling - Original Drilling - As D	100.0	47.0	3,657.8	3,657.6	10,000.000	CC
KY Blue H25-09 - Original Drilling - Original Drilling - As D	2,000.0	1,939.6	3,660.2	3,649.2	334.327	ES
KY Blue H25-09 - Original Drilling - Original Drilling - As D	6,850.0	6,635.3	4,258.2	4,218.2	106.525	SF
KY Blue H25-10 - Original Drilling - Original Drilling - As D	100.0	45.1	2,476.1	2,475.9	10,000.000	CC, ES
KY Blue H25-10 - Original Drilling - Original Drilling - As D	6,800.0	6,615.2	2,927.8	2,887.6	72.847	SF
KY Blue H25-11 - Original Drilling - Original Drilling - As D	4,239.1	4,150.6	1,653.9	1,629.3	67.329	CC
KY Blue H25-11 - Original Drilling - Original Drilling - As D	4,800.0	4,693.5	1,658.7	1,628.2	54.395	ES
KY Blue H25-11 - Original Drilling - Original Drilling - As D	6,850.0	6,681.7	1,818.9	1,751.7	27.053	SF
KY Blue H25-12 - Original Drilling - Original Drilling - As D	6,572.8	6,451.3	932.2	892.7	23.599	CC, ES
KY Blue H25-12 - Original Drilling - Original Drilling - As D	6,650.0	6,524.9	937.5	897.5	23.478	SF
KY Blue H25-14 - Original Drilling - Original Drilling - As D	100.0	59.9	795.6	795.4	4,307.533	CC
KY Blue H25-14 - Original Drilling - Original Drilling - As D	2,000.0	1,960.6	797.3	786.2	72.347	ES
KY Blue H25-14 - Original Drilling - Original Drilling - As D	7,450.0	6,971.2	1,674.7	1,634.1	41.191	SF
KY Blue H25-15 - Original Drilling - Original Drilling - As D	870.0	826.1	1,837.5	1,833.0	406.261	CC
KY Blue H25-15 - Original Drilling - Original Drilling - As D	2,000.0	1,948.0	1,838.5	1,827.6	167.410	ES
KY Blue H25-15 - Original Drilling - Original Drilling - As D	7,250.0	6,908.1	2,721.7	2,681.2	67.250	SF
KY H25-24 - Original Drilling - Original Drilling - As Drilled	100.0	56.1	1,663.7	1,663.5	9,387.815	CC
KY H25-24 - Original Drilling - Original Drilling - As Drilled	2,000.0	1,950.8	1,666.3	1,655.3	151.449	ES
KY H25-24 - Original Drilling - Original Drilling - As Drilled	6,800.0	6,641.3	2,276.8	2,236.9	57.144	SF
Moore UPRC H25-01 - Original Drilling - Original Drilling	3,720.6	3,634.7	5,455.0	5,433.7	256.624	CC
Moore UPRC H25-01 - Original Drilling - Original Drilling	4,000.0	3,894.9	5,455.8	5,432.8	237.371	ES
Moore UPRC H25-01 - Original Drilling - Original Drilling	6,850.0	6,647.3	5,658.5	5,617.8	139.093	SF
Moore UPRC H25-02 - Original Drilling - Original Drilling	6,481.6	6,292.2	4,512.4	4,473.4	115.665	CC, ES
Moore UPRC H25-02 - Original Drilling - Original Drilling	6,800.0	6,620.9	4,579.0	4,538.3	112.508	SF
Moser 25-32 - Original Drilling - Original Drilling - As Drill	3,828.2	3,711.6	3,176.9	3,155.1	145.616	CC
Moser 25-32 - Original Drilling - Original Drilling - As Drill	3,900.0	3,772.1	3,177.1	3,154.8	142.864	ES
Moser 25-32 - Original Drilling - Original Drilling - As Drill	6,750.0	6,581.2	3,333.6	3,293.3	82.611	SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 25						
Moser 25-42 - Original Drilling - Original Drilling - As Drill	630.9	573.9	4,451.2	4,448.1	1,435.285	CC
Moser 25-42 - Original Drilling - Original Drilling - As Drill	1,900.0	1,819.2	4,457.7	4,447.4	432.441	ES
Moser 25-42 - Original Drilling - Original Drilling - As Drill	6,900.0	6,701.1	4,912.7	4,872.0	120.794	SF
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	6,510.9	6,298.9	3,008.1	2,969.0	76.930	CC, ES
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	6,700.0	6,464.7	3,036.9	2,996.8	75.833	SF
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	2,885.6	2,816.7	4,324.5	4,261.8	68.943	CC
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	4,400.0	4,282.9	4,341.1	4,244.7	45.054	ES
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	6,950.0	6,732.9	4,548.8	4,396.6	29.877	SF
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	4,463.1	4,376.7	296.4	270.4	11.386	CC
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	4,500.0	4,413.1	296.5	270.2	11.290	ES
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	4,700.0	4,604.2	302.0	274.6	11.000	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 26						
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	6,606.4	6,267.7	4,488.4	4,450.3	117.927	CC, ES
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	6,950.0	6,632.4	4,567.8	4,528.0	114.657	SF
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	6,682.4	6,547.5	3,111.2	3,072.4	80.097	CC, ES
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	6,950.0	6,784.5	3,153.1	3,113.1	78.817	SF
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	6,552.6	6,071.8	3,567.2	3,529.7	95.339	CC, ES
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	6,700.0	6,700.0	3,583.4	3,543.5	89.826	SF
Dechant H25-29D - Original Drilling - Original Drilling - As	4,358.7	3,810.6	4,345.6	4,310.2	122.758	CC
Dechant H25-29D - Original Drilling - Original Drilling - As	4,400.0	3,830.9	4,345.7	4,310.0	121.857	ES
Dechant H25-29D - Original Drilling - Original Drilling - As	6,700.0	7,032.2	4,432.7	4,374.2	75.668	SF
Dechant H25-33D - Original Drilling - Original Drilling - As	6,800.0	7,583.2	649.2	596.3	12.287	SF
Dechant H25-33D - Original Drilling - Original Drilling - As	6,808.1	7,589.7	649.1	596.3	12.289	CC, ES
Harsh H26-09D - Original Drilling - Original Drilling - As D	6,694.9	6,619.7	1,367.2	1,328.1	34.960	CC
Harsh H26-09D - Original Drilling - Original Drilling - As D	6,700.0	6,624.7	1,367.3	1,328.1	34.937	ES
Harsh H26-09D - Original Drilling - Original Drilling - As D	6,800.0	6,718.8	1,374.4	1,334.8	34.693	SF
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	6,768.3	6,636.4	2,482.9	2,443.7	63.342	CC, ES
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	7,000.0	6,829.3	2,506.6	2,466.6	62.583	SF
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	7,378.1	7,080.8	2,192.2	2,150.8	52.831	CC, ES
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	7,494.9	7,094.2	2,197.7	2,155.9	52.542	SF
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	7,379.5	7,025.8	1,127.4	1,086.6	27.613	CC, ES
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	7,400.0	7,030.1	1,127.7	1,086.9	27.612	SF
Harsh H26-23D - Original Drilling - Original Drilling - As D	6,924.5	6,865.6	1,599.9	1,558.2	38.422	CC, ES
Harsh H26-23D - Original Drilling - Original Drilling - As D	7,000.0	6,943.7	1,601.7	1,559.9	38.392	SF
HSR Moser 04-26 - Original Drilling - Original Drilling - As	6,681.4	6,340.6	6,383.4	6,345.2	167.035	CC, ES
HSR Moser 04-26 - Original Drilling - Original Drilling - As	7,100.0	6,587.0	6,473.7	6,434.2	163.748	SF
HSR Moser 06-26 - Original Drilling - Original Drilling - As	6,738.3	6,600.0	4,058.0	4,018.9	103.936	CC, ES
HSR Moser 06-26 - Original Drilling - Original Drilling - As	7,000.0	6,763.2	4,092.3	4,052.4	102.618	SF
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	6,763.9	6,700.5	5,282.1	5,242.7	134.022	CC, ES
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	7,100.0	6,953.6	5,334.1	5,293.6	131.494	SF
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	6,654.4	6,420.1	5,055.2	5,016.7	131.523	CC, ES
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	6,900.0	6,538.6	5,095.0	5,055.8	129.932	SF
John 03-26 - Original Drilling - Original Drilling - As Drille	6,666.8	6,451.4	4,977.8	4,939.2	129.203	CC, ES
John 03-26 - Original Drilling - Original Drilling - As Drille	6,900.0	6,583.6	5,011.6	4,972.3	127.468	SF
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	6,585.4	6,458.1	2,905.0	2,865.8	74.122	CC, ES
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	6,800.0	6,650.5	2,943.6	2,903.3	73.140	SF
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	6,594.5	6,570.9	3,758.8	3,718.8	93.951	CC
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	6,600.0	6,576.4	3,758.8	3,718.7	93.881	ES
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	6,850.0	6,832.5	3,811.3	3,770.0	92.262	SF
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	6,644.9	6,648.4	2,538.6	2,499.1	64.242	CC
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	6,650.0	6,654.0	2,538.7	2,499.1	64.196	ES
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	6,800.0	6,802.3	2,557.3	2,517.0	63.439	SF
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	6,677.6	6,661.7	2,292.6	2,244.3	47.526	CC, ES
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	6,800.0	6,778.6	2,301.4	2,252.7	47.263	SF
Moser 05-26 - Original Drilling - Original Drilling - As Drill	6,840.5	6,769.2	5,474.8	5,435.1	137.900	CC, ES
Moser 05-26 - Original Drilling - Original Drilling - As Drill	9,600.0	7,004.6	6,843.9	6,793.5	135.870	SF
Moser 41-27 - Original Drilling - Original Drilling - As Drill	6,779.3	6,735.3	6,405.5	6,364.4	156.013	CC, ES
Moser 41-27 - Original Drilling - Original Drilling - As Drill	7,150.0	6,999.7	6,462.0	6,420.0	153.839	SF
Moser H26-11 - Original Drilling - Original Drilling - As Dr	6,886.9	6,696.3	3,998.8	3,959.3	101.162	CC, ES
Moser H26-11 - Original Drilling - Original Drilling - As Dr	7,250.0	6,933.6	4,042.6	4,002.1	99.867	SF
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	7,041.7	6,939.0	5,050.4	5,009.9	124.900	CC, ES
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	10,200.0	7,148.5	6,385.3	6,330.6	116.796	SF
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	7,476.9	7,018.4	4,940.8	4,899.9	120.889	CC, ES
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	11,000.0	7,178.0	6,081.8	6,021.0	100.067	SF
Moser H26-14 - Original Drilling - Original Drilling - As Dr	7,607.3	6,913.2	3,400.5	3,359.9	83.796	CC, ES

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 26						
Moser H26-14 - Original Drilling - Original Drilling - As Dr	9,500.0	6,908.7	3,891.7	3,841.3	77.190	SF
Moser H26-18D - Original Drilling - Original Drilling - As D	6,674.7	6,969.3	4,090.7	4,033.3	71.264	CC, ES
Moser H26-18D - Original Drilling - Original Drilling - As D	6,950.0	7,193.6	4,136.8	4,078.2	70.592	SF
Moser H26-24 - Original Drilling - Original Drilling - As Dr	7,075.7	6,940.7	3,185.3	3,144.8	78.712	CC, ES
Moser H26-24 - Original Drilling - Original Drilling - As Dr	7,250.0	7,040.2	3,194.9	3,154.2	78.316	SF
Moser H26-25 - Original Drilling - Original Drilling - As Dr	7,200.0	7,010.0	3,943.6	3,902.9	96.755	ES
Moser H26-25 - Original Drilling - Original Drilling - As Dr	7,200.8	7,009.6	3,943.6	3,902.9	96.759	CC
Moser H26-25 - Original Drilling - Original Drilling - As Dr	9,400.0	7,053.7	4,690.3	4,640.3	93.945	SF
Moser H26-27D - Original Drilling - Original Drilling - As D	6,613.7	6,652.7	4,429.8	4,388.3	106.978	CC, ES
Moser H26-27D - Original Drilling - Original Drilling - As D	6,900.0	6,927.6	4,492.9	4,450.1	105.083	SF
Moser H26-28D - Original Drilling - Original Drilling - As D	0.0	14.6	4,437.5			
Moser H26-28D - Original Drilling - Original Drilling - As D	11,900.0	11,900.0	9,717.0	9,590.7	76.919	SF
Moser H26-29D - Original Drilling - Original Drilling - As D	0.0	17.7	4,430.5			
Moser H26-29D - Original Drilling - Original Drilling - As D	200.0	200.3	4,431.0	4,430.2	5,525.694	ES
Moser H26-29D - Original Drilling - Original Drilling - As D	9,600.0	9,600.0	7,804.6	7,690.6	68.444	SF
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	7,337.4	6,981.5	4,558.8	4,402.7	29.202	CC
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	7,350.0	6,984.6	4,558.9	4,402.7	29.191	ES
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	7,450.0	7,000.3	4,562.1	4,405.6	29.149	SF
H Section 27						
HSR Moser 1-27 - Original Drilling - Original Drilling - As	6,722.3	6,419.2	7,231.4	7,193.0	188.093	CC, ES
HSR Moser 1-27 - Original Drilling - Original Drilling - As	11,100.0	11,100.0	9,958.4	9,887.1	139.591	SF
HSR Moser 16-27 - Original Drilling - Original Drilling - As	7,637.5	7,022.5	6,032.8	5,992.0	147.615	CC, ES
HSR Moser 16-27 - Original Drilling - Original Drilling - As	12,100.0	7,030.9	7,503.7	7,435.6	110.160	SF
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	7,081.1	6,839.2	6,204.5	6,163.9	152.944	CC, ES
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	11,300.0	6,912.0	7,947.2	7,885.6	129.001	SF
Moser 24-27 - Original Drilling - Original Drilling - As Drill	6,959.6	6,767.3	7,051.2	7,010.3	172.278	CC, ES
Moser 24-27 - Original Drilling - Original Drilling - As Drill	12,300.0	7,100.0	9,604.8	9,537.0	141.774	SF
H Section 34						
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	11,458.9	7,051.2	6,004.2	5,938.6	91.566	CC
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	11,500.0	7,051.5	6,004.4	5,938.4	90.984	ES
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	12,821.8	7,058.8	6,156.9	6,078.3	78.308	SF
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	12,706.9	6,973.2	5,977.6	5,900.8	77.896	CC
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	12,800.0	6,974.8	5,978.3	5,900.6	76.916	ES
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	12,821.8	6,975.2	5,978.7	5,900.7	76.707	SF
Moser H34-31 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
H Section 35						
Cannon Farms 01-35C - Original Drilling - Original Drilling	12,242.2	7,004.8	1,329.5	1,256.9	18.310	CC, ES
Cannon Farms 01-35C - Original Drilling - Original Drilling	12,500.0	7,001.5	1,354.2	1,278.5	17.884	SF
Cannon H35-03D - Original Drilling - Original Drilling - As	11,789.9	6,900.0	3,768.5	3,700.2	55.241	CC
Cannon H35-03D - Original Drilling - Original Drilling - As	11,800.0	6,900.0	3,768.5	3,700.1	55.150	ES
Cannon H35-03D - Original Drilling - Original Drilling - As	12,821.8	6,934.4	3,907.1	3,828.9	49.953	SF
Cannon H35-09 - Original Drilling - Original Drilling - As D	11,302.9	6,983.3	975.4	907.0	14.259	CC, ES
Cannon H35-09 - Original Drilling - Original Drilling - As D	11,500.0	6,979.1	995.1	924.1	14.015	SF
Cannon H35-10 - Original Drilling - Original Drilling - As D	11,446.0	7,048.2	2,212.6	2,147.2	33.831	CC
Cannon H35-10 - Original Drilling - Original Drilling - As D	11,500.0	7,048.3	2,213.3	2,147.2	33.501	ES
Cannon H35-10 - Original Drilling - Original Drilling - As D	12,000.0	7,049.9	2,280.9	2,209.8	32.053	SF
Cannon H35-11 - Original Drilling - Original Drilling - As D	11,357.7	6,933.7	3,283.9	3,219.4	50.945	CC
Cannon H35-11 - Original Drilling - Original Drilling - As D	11,400.0	6,934.2	3,284.2	3,219.2	50.575	ES
Cannon H35-11 - Original Drilling - Original Drilling - As D	12,500.0	6,947.5	3,476.9	3,401.8	46.325	SF
Cannon H35-12 - Original Drilling - Original Drilling - As D	11,502.7	7,044.8	4,746.9	4,680.9	71.986	CC
Cannon H35-12 - Original Drilling - Original Drilling - As D	11,600.0	7,045.5	4,747.9	4,680.9	70.896	ES
Cannon H35-12 - Original Drilling - Original Drilling - As D	12,821.8	7,054.8	4,926.7	4,848.3	62.819	SF
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	12,694.3	7,058.8	4,775.6	4,698.8	62.146	CC
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	12,700.0	7,058.7	4,775.6	4,698.7	62.096	ES
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	12,821.8	7,055.3	4,777.3	4,699.1	61.087	SF
Cannon H35-14 - Original Drilling - Original Drilling - As D	12,690.3	7,023.8	3,382.0	3,298.3	40.393	CC
Cannon H35-14 - Original Drilling - Original Drilling - As D	12,700.0	7,023.7	3,382.1	3,298.2	40.340	ES
Cannon H35-14 - Original Drilling - Original Drilling - As D	12,821.8	7,022.9	3,384.6	3,299.4	39.728	SF
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	12,692.8	7,014.0	2,165.1	1,972.4	11.237	CC
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	12,700.0	7,014.0	2,165.1	1,972.3	11.231	ES
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	12,821.8	7,014.0	2,168.9	1,974.7	11.165	SF
Cannon H35-20 - Original Drilling - Original Drilling - As D	10,883.3	6,900.0	4,161.3	4,101.1	69.111	CC
Cannon H35-20 - Original Drilling - Original Drilling - As D	10,900.0	6,900.0	4,161.4	4,101.0	68.911	ES
Cannon H35-20 - Original Drilling - Original Drilling - As D	12,600.0	6,900.0	4,501.5	4,426.2	59.757	SF
Cannon H35-21 - Original Drilling - Original Drilling - As D	10,927.9	7,046.5	2,741.7	2,680.8	45.042	CC, ES
Cannon H35-21 - Original Drilling - Original Drilling - As D	11,800.0	7,048.5	2,877.0	2,807.7	41.530	SF
Cannon H35-22 - Original Drilling - Original Drilling - As D	10,818.6	7,016.2	1,813.3	1,753.8	30.447	CC, ES
Cannon H35-22 - Original Drilling - Original Drilling - As D	11,300.0	7,000.7	1,876.1	1,811.5	29.026	SF
Cannon H35-24 - Original Drilling - Original Drilling - As D	12,118.6	6,889.5	2,910.5	2,839.2	40.862	CC, ES
Cannon H35-24 - Original Drilling - Original Drilling - As D	12,821.8	6,900.0	2,994.2	2,915.9	38.236	SF
Cannon X02-27 - Original Drilling - Original Drilling - As D	12,821.8	7,013.0	1,764.5	1,689.1	23.410	CC, ES, SF
Cannon X02-28 - Original Drilling - Original Drilling - As D	12,821.8	6,959.8	2,923.9	2,846.6	37.795	CC, ES, SF
Cannon X02-29 - Original Drilling - Original Drilling - As D	12,821.8	7,146.9	4,250.4	4,172.4	54.536	CC, ES, SF
Foster 18-35 - Original Drilling - Original Drilling - As Drill	9,224.7	6,930.2	4,335.7	4,288.5	91.989	CC, ES
Foster 18-35 - Original Drilling - Original Drilling - As Drill	11,500.0	6,944.3	4,896.3	4,830.9	74.816	SF
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	8,589.3	7,026.0	2,224.0	2,064.5	13.944	CC
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	8,600.0	7,026.0	2,224.0	2,064.4	13.938	ES
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	8,800.0	7,026.0	2,233.9	2,072.8	13.868	SF
Foster UPRR 32-35 - Original Drilling - Original Drilling -	9,926.2	7,029.8	2,319.3	2,266.8	44.167	CC, ES
Foster UPRR 32-35 - Original Drilling - Original Drilling -	10,700.0	7,032.7	2,445.0	2,385.0	40.783	SF
Foster UPRR 41-35 - Original Drilling - Original Drilling -	8,774.1	7,014.6	890.5	836.3	16.424	CC, ES
Foster UPRR 41-35 - Original Drilling - Original Drilling -	8,900.0	7,015.3	899.4	843.7	16.158	SF
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	9,869.0	7,045.2	905.8	853.8	17.438	CC, ES
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	10,000.0	7,048.3	915.2	861.4	17.016	SF
HSR Foster 03-35 - Original Drilling - Original Drilling - A	8,837.0	7,057.9	3,458.3	3,413.3	76.944	CC, ES
HSR Foster 03-35 - Original Drilling - Original Drilling - A	12,200.0	12,200.0	4,822.7	4,738.3	57.152	SF
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	8,581.8	6,780.8	5,131.5	5,088.6	119.646	CC
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	8,600.0	6,780.8	5,131.5	5,088.5	119.354	ES
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	11,800.0	6,778.5	6,057.0	5,990.5	91.086	SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 35						
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	10,164.7	6,748.2	4,880.0	4,826.2	90.794	CC
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	10,200.0	6,748.3	4,880.1	4,826.0	90.224	ES
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	12,600.0	6,756.8	5,453.8	5,379.7	73.592	SF
HSR Foster 06-35 - Original Drilling - Original Drilling - A	10,021.2	7,005.2	3,516.8	3,463.6	66.081	CC, ES
HSR Foster 06-35 - Original Drilling - Original Drilling - A	11,500.0	7,010.7	3,815.0	3,748.8	57.602	SF
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	9,374.8	7,013.6	1,430.1	1,381.8	29.588	CC
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	9,400.0	7,013.5	1,430.3	1,381.7	29.416	ES
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	9,800.0	7,011.9	1,492.0	1,439.2	28.277	SF
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	9,070.6	6,877.6	3,917.6	3,871.6	85.215	CC
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	9,100.0	6,877.6	3,917.7	3,871.5	84.788	ES
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	11,100.0	6,877.8	4,411.9	4,349.8	70.954	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 36						
Dechant 07-36 - Original Drilling - Original Drilling - As D	10,163.6	6,932.6	2,780.8	2,726.9	51.534	CC, ES
Dechant 07-36 - Original Drilling - Original Drilling - As D	10,700.0	6,935.0	2,832.1	2,775.5	50.083	SF
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	12,821.8	6,773.7	611.8	550.5	9.983	CC, ES, SF
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	12,821.8	6,700.0	1,800.8	1,724.1	23.482	CC, ES, SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	12,616.2	6,979.7	2,837.6	2,743.9	30.311	CC, ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	12,821.8	6,980.5	2,845.0	2,750.2	30.007	SF
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	908.7	867.7	1,850.6	1,845.8	383.339	CC
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	1,000.0	936.5	1,851.0	1,845.7	350.797	ES
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	12,821.8	11,470.6	2,992.9	2,853.2	21.432	SF
Dechant 24-36 - Original Drilling - Original Drilling - As D	933.7	906.2	3,191.8	3,186.8	644.357	CC, ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	11,700.0	7,109.7	3,686.6	3,618.1	53.809	SF
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	12,821.8	6,650.0	1,539.2	1,464.2	20.525	CC, ES, SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	12,821.8	6,727.4	989.6	917.1	13.642	CC, ES, SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	12,821.8	6,600.0	2,057.6	1,981.4	26.981	CC, ES, SF
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	12,821.8	6,134.4	3,913.6	3,838.5	52.062	CC, ES, SF
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	12,821.8	6,486.8	3,350.1	3,273.9	43.954	CC, ES, SF
Dechant State 16C-1HZ - Original Drilling - Original Drilling	2,423.5	2,826.7	3,373.4	3,357.9	218.032	CC, ES
Dechant State 16C-1HZ - Original Drilling - Original Drilling	12,821.8	11,934.2	4,246.5	4,101.1	29.202	SF
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	2,011.6	1,977.5	1,827.1	1,815.9	163.342	CC, ES
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	12,821.8	11,302.3	2,714.2	2,575.1	19.519	SF
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	2,349.6	2,673.0	3,436.2	3,421.7	237.435	CC, ES
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	12,821.8	11,408.6	3,930.9	3,792.1	28.316	SF
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	900.6	858.6	1,870.3	1,865.6	391.533	CC
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	1,000.0	936.9	1,870.7	1,865.4	354.409	ES
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	12,821.8	11,473.3	3,334.5	3,194.4	23.791	SF
Dechant State 38N-1HZ - Original Drilling - Original Drilling	905.9	860.9	3,614.1	3,609.3	753.398	CC
Dechant State 38N-1HZ - Original Drilling - Original Drilling	1,000.0	924.5	3,614.3	3,609.1	690.515	ES
Dechant State 38N-1HZ - Original Drilling - Original Drilling	12,821.8	11,214.4	4,639.5	4,502.1	33.766	SF
Dechant State H36-11D - Original Drilling - Original Drilling	11,384.0	6,962.6	1,647.1	1,582.6	25.517	CC, ES
Dechant State H36-11D - Original Drilling - Original Drilling	11,500.0	6,960.5	1,651.2	1,586.3	25.432	SF
Dechant State H36-18D - Original Drilling - Original Drilling	100.0	79.6	1,527.7	1,527.5	6,973.675	CC
Dechant State H36-18D - Original Drilling - Original Drilling	1,200.0	1,171.0	1,530.2	1,524.8	286.896	ES
Dechant State H36-18D - Original Drilling - Original Drilling	9,900.0	7,194.9	2,235.7	2,183.1	42.495	SF
Dechant State H36-19 - Original Drilling - Original Drilling	9,000.0	7,037.9	750.8	704.4	16.212	SF
Dechant State H36-19 - Original Drilling - Original Drilling	9,011.3	7,038.2	750.7	704.4	16.215	CC, ES
Dechant State H36-20D - Original Drilling - Original Drilling	10,788.0	7,151.4	1,004.1	943.7	16.630	CC, ES, SF
Dechant State H36-21D - Original Drilling - Original Drilling	10,733.0	7,072.3	2,205.1	2,144.7	36.517	CC, ES
Dechant State H36-21D - Original Drilling - Original Drilling	10,900.0	7,072.0	2,211.4	2,150.5	36.301	SF
Dechant State H36-24 - Original Drilling - Original Drilling	11,939.5	7,172.3	2,305.8	2,234.4	32.263	CC, ES
Dechant State H36-24 - Original Drilling - Original Drilling	12,300.0	7,168.5	2,333.8	2,260.6	31.851	SF
Dechant State H36-31D - Original Drilling - Original Drilling	9,388.0	7,150.3	249.3	200.4	5.094	CC
Dechant State H36-31D - Original Drilling - Original Drilling	9,400.0	7,150.4	249.6	200.1	5.040	ES, SF
Dechant State H36-32D - Original Drilling - Original Drilling	10,640.2	7,068.5	233.2	173.9	3.933	CC, ES, SF
Dechant State H36-33 - Original Drilling - Original Drilling	11,854.9	7,182.4	155.8	84.7	2.190	CC, ES, SF
HSR Dechant State 02-36 - Original Drilling - Original Drilling	2,150.8	2,214.3	1,989.8	1,977.5	162.515	CC, ES
HSR Dechant State 02-36 - Original Drilling - Original Drilling	8,900.0	6,941.4	2,728.6	2,684.7	62.288	SF
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	2,000.0	1,960.0	3,129.3	3,085.8	71.856	CC
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	2,100.0	2,060.0	3,131.0	3,085.3	68.410	ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	9,900.0	6,979.0	3,318.8	3,152.0	19.900	SF
Spike State GWS H36-03 - Original Drilling - Original Drilling	339.9	299.9	1,284.9	1,283.4	860.426	CC
Spike State GWS H36-03 - Original Drilling - Original Drilling	2,000.0	1,954.3	1,288.7	1,277.7	117.152	ES
Spike State GWS H36-03 - Original Drilling - Original Drilling	8,800.0	7,011.9	1,781.8	1,737.8	40.441	SF
Spike State GWS H36-04 - Original Drilling - Original Drilling	8,465.8	6,996.2	263.4	212.1	5.132	CC, ES, SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

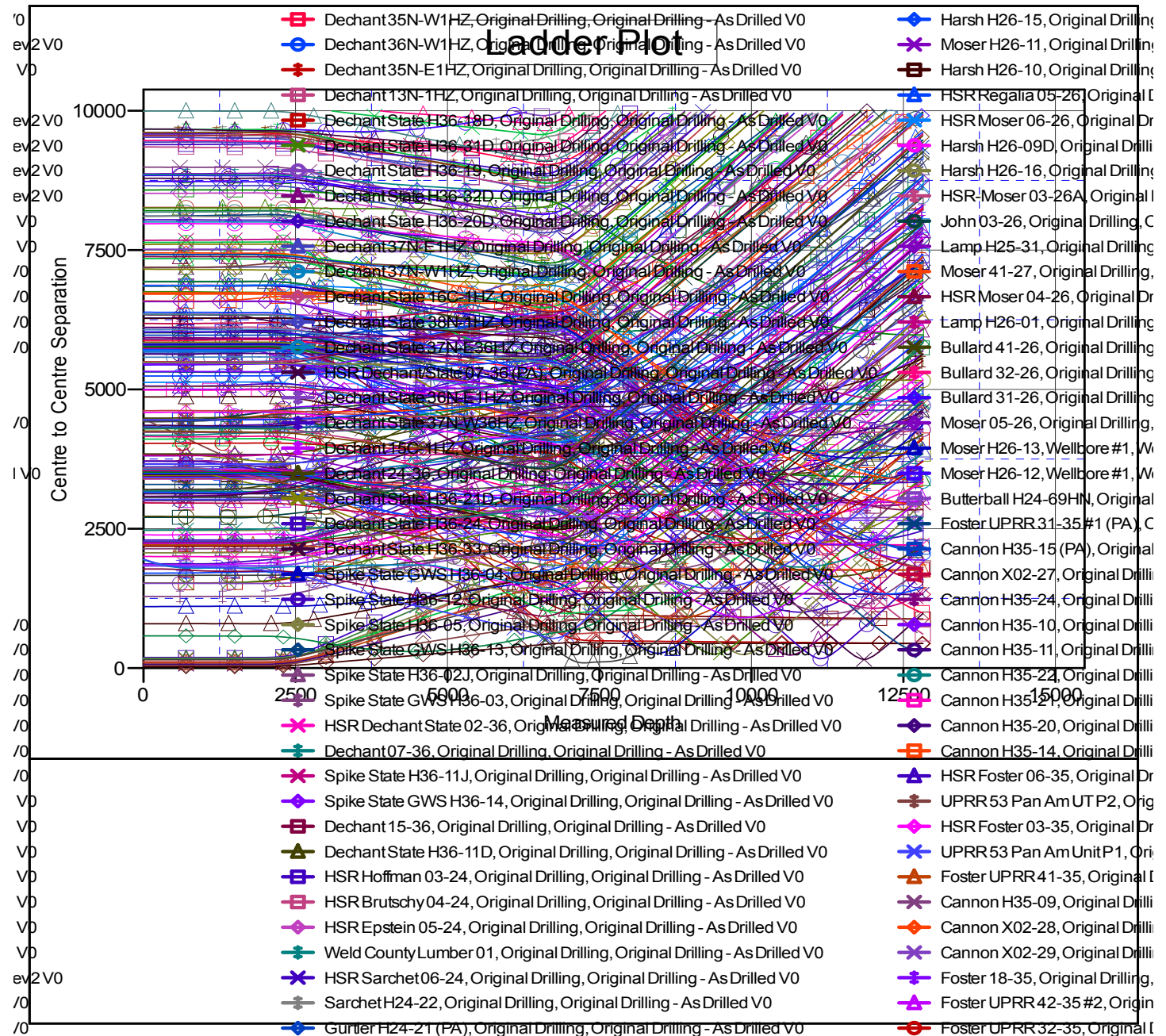
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 36						
Spike State GWS H36-13 - Original Drilling - Original Dri	12,742.0	6,936.6	308.6	233.6	4.116	CC, ES, SF
Spike State GWS H36-14 - Original Drilling - Original Dri	12,732.9	6,972.1	1,942.2	1,865.3	25.259	CC, ES
Spike State GWS H36-14 - Original Drilling - Original Dri	12,821.8	6,967.5	1,944.2	1,867.0	25.168	SF
Spike State H36-02J - Original Drilling - Original Drilling -	9,663.4	6,972.3	1,244.8	1,161.3	14.904	CC, ES
Spike State H36-02J - Original Drilling - Original Drilling -	9,700.0	6,972.9	1,245.3	1,161.7	14.894	SF
Spike State H36-05 - Original Drilling - Original Drilling - A	9,868.0	7,007.8	242.7	190.5	4.651	CC, ES, SF
Spike State H36-11J - Original Drilling - Original Drilling -	12,004.5	6,990.7	1,073.4	1,003.1	15.272	CC, ES, SF
Spike State H36-12 - Original Drilling - Original Drilling - A	11,139.1	7,000.4	167.6	105.0	2.677	CC, ES, SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4849.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Emmy State H36-787
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.57°

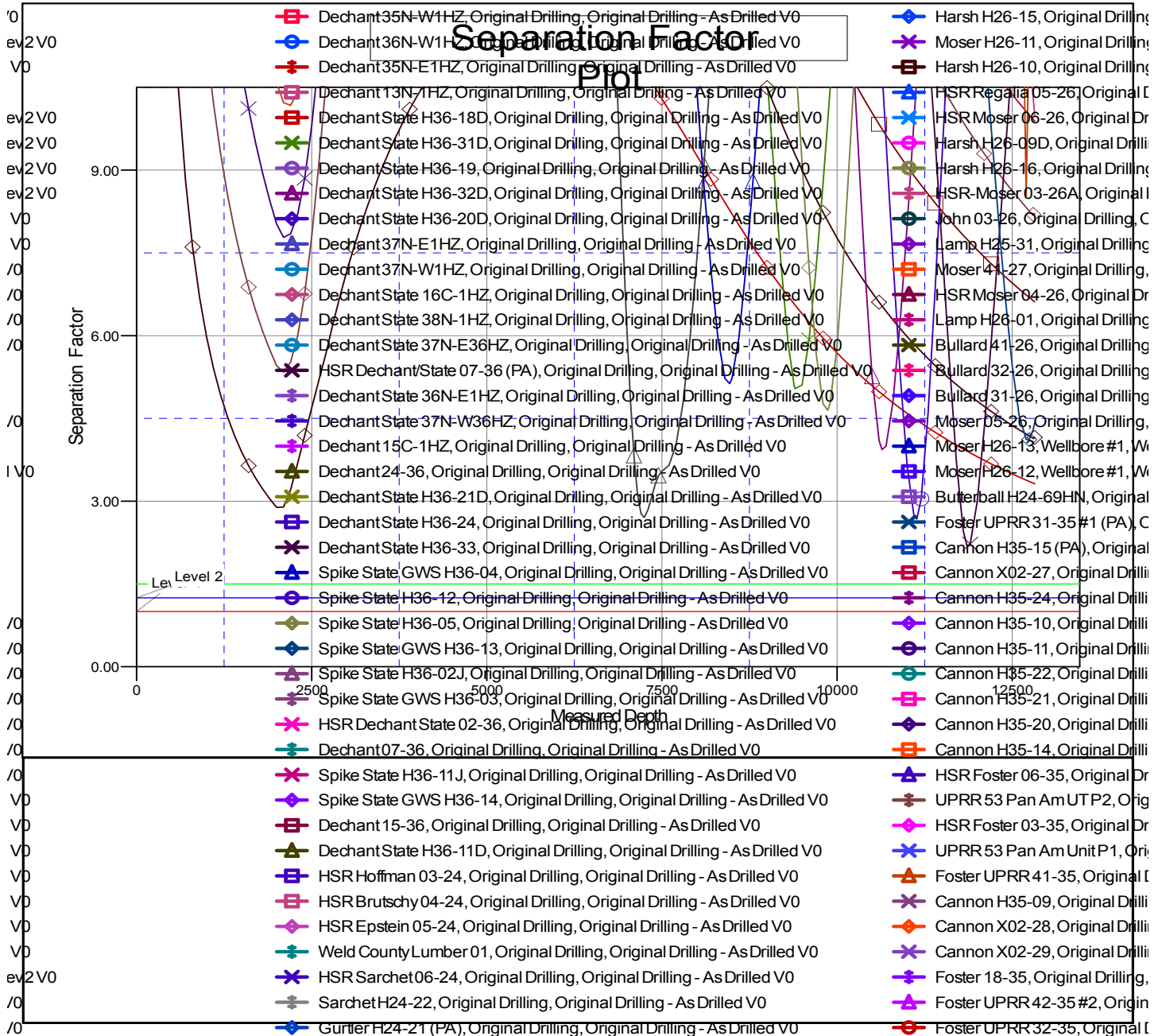


Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-787
Project:	Conceptual Wells	TVD Reference:	WELL @ 4849.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4849.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H36-787	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4849.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Emmy State H36-787
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.57°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation